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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,895

06/13/2007

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EXAMINER

POWERS, FIONA

ART UNIT

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1626

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,895	Applicant(s) AIZAWA ET AL.	
	Examiner Fiona T. Powers	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 to 3 are pending in the application.

Receipt is acknowledged of the amendment filed March 30, 2009, which has been entered in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 does not find antecedent basis in claim 1 because the groups that correspond to Z^1 and Z^2 are monocyclic or condensed carbocyclic aromatic rings but in claim 1 Z^1 and Z^2 mean monocyclic or condensed heterocyclic aromatic rings.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hohsaka et al. (US 2001/0044074) and Namba et al. (US 6071672) and Sun et al. (The Imaging Science Journal, 47(2), 113-117, 1999), of record.

Determination of the scope and content of the prior art (MPEP §2141.01)

The references disclose structurally similar cyanine dyes that are used for optical recording material. The cyanine dyes of Hohsaka et al. '074 are a salt of a trimethine cyanine dye cation and an azo cobalt complex azo anion and are structurally similar to the claimed cyanine dyes of the General Formula 1 in which Z¹ and A² are condensed heterocyclic aromatic rings which are naphthalene and R¹ to R⁶ are independently aliphatic hydrocarbon groups such as methyl, ethyl and butyl. Note Chemical Formulas 16, 21, 34 and 67 on pages 6 to 13 of Hohsaka et al. '074.

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Namba et al. and Sun et al. disclose trimethine cyanine dyes and monomethine cyanine dyes useful for optical recording material. The monomethine cyanine dyes of Namba et al. have a bisphenyldithiol metal complex anion. See the dye of the formula D-9-4 in column 19 of Namba et al. The monomethine cyanine dye D-1 of Sun et al. has a perchlorate anion. Note D-1 of Figure 1 and the "Results and Discussion" section in the left-hand column on page 114 of Sun et al.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

The cyanine dyes of Hohsaka et al. differ from the claimed cyanine dyes of the Formula 1 only in that they are trimethine cyanine dyes instead of monomethine cyanine dyes. The monomethine cyanine dyes of Sun et al. and Namba et al. differ from the claimed cyanine dyes of the Formula 1 in that the anion is perchlorate or bisphenyldithiol metal complex anion, respectively, instead of an azo metal complex anion.

Finding of prima facie obviousness---rational and motivation (MPEP §2142-2413)

Namba et al. and Sun et al. disclose the interchangeability of monomethine cyanine dyes with trimethine cyanine dyes in optical recording medium. Note formula (2) in the abstract of Namba et al. where n is 0 or 1. Also note the dyes of the formulae D-5, D-6, D-7, D-8, D-9-1 to D-9-4 in columns 15 to 19 of Namba et al. '672.

Sun et al. disclose indocyanine dyes of different methine chain length useful for optical recording medium. Note the abstract and Figure 1 of Sun et al. The monomethine indocyanine dye D-1 was compared to the analogous trimethine (D-2), pentamethine (D-3) and heptamethine (D-4) indocyanine dyes in Table 1 on page 114. Sun et al. disclose "to meet the development of a short wavelength of the diode laser, new materials suitable for optical recording at a corresponding wavelength need to be found" (page 113). The results of Table 1 show that the monomethine dye had the shortest maximum absorption band. In the conclusion (p. 116), Sun et al. disclose that

1. Both the molar extinction coefficient and the refractive index of D-1 are lower than those of other indocyanine dyes.
2. As the central conjugated methine length increased, the decomposition temperature of the dyes decreased. D-1 shows the highest decomposition temperature.
3. D-1 film can exhibit relatively high reflection and low absorption at a wavelength of 480 nm. Therefore D-1 has been predicted to be the next-generation DVD-R medium.

One of ordinary skill in the art would have been motivated to make the claimed cyanine dyes of the Formula 1 by substituting a monomethine cyanine dye disclosed by Namba et al.

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or Sun et al. for the trimethine cyanine dye of Hohsaka et al. or by substituting the perchlorate or bisphenyldithiol metal complex anion disclosed by Sun and Namba with the azo metal complex anion of Hohsaka with the expectation that additional cyanine dyes useful for optical recording material would be obtained. The claimed cyanine dyes would have been rendered obvious by the teachings of the references in the absence of any unobvious property.

The comparative data on pages 23 to 26 of the specification has been fully considered and deemed not persuasive of the patentability of the claimed cyanine dyes because the closest prior art dyes which are the cyanine dyes of Hohsaka et al. '074 mentioned above were not compared.

Response to Arguments

The rejection of claim 1 under 35 USC 112, second paragraph presented in the previous office action has been overcome by applicants amendment. Since the rejection has been withdrawn, applicants arguments with respect to this rejection will not be addressed.

Applicant's arguments filed March 30, 2009 have been fully considered but they are not persuasive. Applicants state that

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physicochemical properties of the compounds differ greatly depending on the particular cation or anion part of the compounds and that no one would have been motivated to replace trimethine cyanine dye, the cation of the Hohsaka compounds, with the monomethine cyanine dye of Mamba with any reasonable expectation of success that cyanine dyes with superior properties useful for optical recording media would be obtained. Applicants also state that the anion "X" in the compounds of Sun is unknown; and the compound D-1, a monomethine cyanine dye of Sun is inferior to the cyanine dyes claimed in claim 1 with respect to molar absorption coefficient. Therefore one skill in the art would not have been motivated to replace the cation of the Hohsaka compounds, with the cation of the monomethine cyanine dye disclosed by Sun with a reasonable expectation of success in obtaining cyanine dyes having superior properties for use in optical recording media.

However, the anion "X" in the Sun compounds is known. It is the perchlorate anion. Note the left-hand paragraph under "Results and Discussion" on page 114 of Sun. Furthermore, Hohsaka discloses the anion "X" represents a suitable counter ion and depending on uses, such a counter ion is not limited and appropriately selected on the basis of its solubility in DAA and/or heat resistance" (paragraph [0020 of Hohsaka). In

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addition, Hohsaka teaches the interchangeability of inorganic anions such as the perchlorate anion of Sun or the bisphenyldithiol organic metal complex of Namba with organic metal complex anion such as azo (paragraph [0020] of Hohsaka). Therefore, one of ordinary skill in the art would have been motivated to substitute the monomethine cyanine dye cation disclosed by Sun or Namba for the trimethine cyanine dye cation disclosed by Hohsaka or substitute the perchlorate or anion disclosed by Sun or Namba with the azo metal complex anion of Hohsaka with the expectation that additional cyanine dyes useful for optical recording material would be obtained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened

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statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fiona T. Powers whose telephone number is 571-272-0702. The examiner can normally be reached on Monday - Friday 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Fiona T. Powers/
Primary Examiner, Art Unit
1626

ftp
July 9, 2009